CLAIMS

1. A method for matching a property of first and second fluid flows in respective, fluidly-unconnected first and second flow paths, wherein the first flow path includes a first flow source and a first flow transducer which measures the property, wherein the second flow path includes a second flow source and a second flow transducer which measures the property, and wherein the method comprises the steps of:

a) shutting off the second flow source;

b) fluidly interconnecting the first and second flow paths creating an interconnected flow path which allows substantially the same flow from the first flow source to encounter the first and second flow transducers;

c) after steps a) and b), obtaining readings from the first and second flow transducers for various identical values of the property of the first flow source;

d) after step c), disconnecting the fluid interconnection between the first and second flow paths;

e) turning on the second flow source;

f) after steps d) and e), obtaining a reading from the first flow transducer and a reading from the second flow transducer; and

g) controlling the fluid flow in one of the first and second flow paths to match the property of the first and second fluid flows using the readings from step f) and using the readings in step c).

2. The method of claim 1, wherein the first and second flow transducers are uncalibrated flow transducers.

3. The method of claim 1, wherein the property is a flow rate, wherein the first and second flow transducers measure flow rate, and wherein step g) matches the flow rate of the first and second fluid flows.

4. The method of claim 3, wherein the first and second flow transducers are differential pressure transducers.

5. The method of claim 4, wherein the first and second flow transducers are uncalibrated differential pressure transducers.

6. A method for matching the flow rate of first and second fluid flows in respective, fluidly-unconnected first and second flow paths, wherein the first flow path includes a first flow source and a first flow-rate transducer, wherein the second flow path includes a second flow source and a second flow-rate transducer, and wherein the method comprises the steps of:

a) shutting off the second flow source;

b) fluidly interconnecting the first and second flow paths creating an interconnected flow path which allows substantially the same flow from the first flow source to encounter the first and second flow-rate transducers;

c) after steps a) and b), obtaining readings from the first and second flow-rate transducers for various identical values of the flow rate of the first flow source;

d) after step c), disconnecting the fluid interconnection between the first and second flow paths;

e) turning on the second flow source;

f) after steps d) and e), obtaining a reading from the first flow-rate transducer and a reading from the second flow-rate transducer; and

g) controlling the flow rate of the first fluid flow to match the flow rate of the second fluid flow using the readings from step f) and using the readings in step c).

7. The method of claim 6, wherein the first and second flow-rate transducers are differential pressure transducers.

8. The method of claim 7, wherein the first and second flow-rate transducers are uncalibrated differential pressure transducers.

9. The method of claim 6, wherein step g) adjusts a valve in the first flow path to control the flow rate in the first flow path.

10. The method of claim 9, wherein the first flow path is a water replacement flow path of a kidney dialysis machine, and wherein the second flow path is a waste water flow path of the kidney dialysis machine.

11. A fluid flow matching system comprising:

a) a first fluid flow path having a servo-controlled actuator which controls a property of the first fluid flow and having in series a first flow source, a first flow transducer, and a first valve;

b) a second fluid flow path having in series a second valve and a second flow transducer;

c) a fluid interconnection path having in series a first end, an interconnection valve, and a second end, wherein the first end is in fluid communication with the first fluid flow path between the first valve and the first flow transducer, and wherein the second end is in fluid communication with the second fluid flow path between the second valve and the second flow transducer; and

d) data representing readings of the first and second flow transducers for various identical values of the property of the first flow source taken with the first valve fully shut, the interconnection valve fully open, and the second valve fully shut, wherein the servo-controlled actuator is controlled from readings of the first and second flow transducers taken with the first valve fully open, the interconnection valve fully shut, and the second valve fully open and from the data.

12. The fluid flow matching system of claim 11, wherein the first and second flow transducers are uncalibrated flow transducers.

13. The fluid flow matching system of claim 12, wherein the first and second flow transducers measure flow rate.

14. The fluid flow matching system of claim 13, wherein the first and second flow transducers are differential pressure transducers.

15. The fluid flow matching system of claim 14, wherein the first flow path is a water replacement flow path of a kidney dialysis machine, and wherein the second flow path is a waste water flow path of the kidney dialysis machine.

16. A fluid flow-rate matching system comprising:

a) a first fluid flow path having in series a first flow source, a servo-controlled valve, a first flow-rate transducer, and a first valve;

b) a second fluid flow path having in series a second valve and a second flow-rate transducer;

c) a fluid interconnection path having in series a first end, an interconnection valve, and a second end, wherein the first end is in fluid communication with the first fluid flow path between the first valve and the first flow-rate transducer, and wherein the second end is in fluid communication with the second fluid flow path between the second valve and the second flow-rate transducer; and

d) data representing readings of the first and second flow-rate transducers for various identical values of the flow rate of the first flow source taken with the first valve fully shut, the interconnection valve fully open, and the second valve fully shut, wherein the servo-controlled valve is controlled from readings of the first and second flow-rate transducers taken with the first valve fully open, the interconnection valve fully shut, and the second valve fully open and from the data.

17. The fluid flow-rate matching system of claim 16, wherein the first and second flow-rate transducers are uncalibrated flow-rate transducers.

18. The fluid flow-rate matching system of claim 17, wherein the first and second flow-rate transducers are differential pressure transducers.

19. The fluid flow-rate matching system of claim 18, wherein the first flow path is a water replacement flow path of a kidney dialysis machine, and wherein the second flow path is a waste water flow path of the kidney dialysis machine.